PENDING CLAIMS AS AMENDED

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) An interlayer interconnection unit for a printed circuit board (PCB), comprising:

a plurality of interstitial bridge pads, each of said plurality of interstitial bridge pads having a first side and a second side, wherein said first side of each of said interstitial bridge pads physically contacts a first dielectric layer and said second side of each of said plurality of_interstitial bridge pads physically contacts a second dielectric layer;

a corresponding first blind via disposed on said first side of each of said plurality of_interstitial bridge pads, wherein said first blind via extends through said first dielectric layer; and

a corresponding second blind via disposed on said second side of each of said plurality of_interstitial bridge pads, wherein said second blind via extends through said second dielectric layer, wherein each of said plurality of interstitial bridge pads electrically connects corresponding first blind vias to corresponding second blind vias,

wherein each of said plurality of interstitial bridge pads is coaxial in a z direction with said corresponding first blind via and with said corresponding second blind via,

wherein, in between interstitial bridge pads, at least a portion of said first dielectric layer is fused to at least a portion of said second dielectric layer,

said corresponding first blind vias extend from corresponding first capture pads to said first side of each of said plurality of interstitial bridge pads,

said corresponding second blind vias extend from corresponding second capture pads to said second side of each of said plurality of interstitial bridge pads, and

said corresponding first capture pad and said corresponding second capture pad each have a diameter less than a diameter of said interstitial bridge pad therebetween.

2. (Original) The interlayer interconnection unit of claim 1, wherein said interstitial bridge pad comprises a disc-shaped conductive element.

3. (Previously Presented) The interlayer interconnection unit of claim 1, wherein:

said corresponding first blind via extends from a first conductive layer, through said first dielectric layer, and to said first side of each of said plurality of interstitial bridge pads, and

said corresponding second blind via extends from a second conductive layer, through said second dielectric layer, and to said second side of each of said plurality of interstitial bridge pads.

4. (Original) The interlayer interconnection unit of claim 1, wherein said first conductive layer and said second conductive layer each comprise copper foil.

5-6. (Canceled)

7. (Previously Presented) The interlayer interconnection unit of claim 1, wherein each of said plurality of interstitial bridge pads have a diameter in the range of from about 12 to 20 mils.

8. (Previously Presented) The interlayer interconnection unit of claim 1, wherein:

said PCB comprises a bridge layer disposed between said first dielectric layer and said second dielectric layer, and

each of said plurality of interstitial bridge pads are located within said bridge layer, and wherein each of said plurality of interstitial bridge pad lacks electrical connection, within said bridge layer, to a conductive element of said bridge layer.

9-17. (Canceled)

18. (Previously Presented) A dual blind via interconnection unit for a multilayer PCB, comprising:

a pair of opposed coaxial blind vias transversing a pair of dielectric layers; and

at least one bridge pad disposed between said pair of blind vias, wherein each of said pair of dielectric layers is in physical contact with said bridge pad, and wherein said bridge pad is adapted to electrically interconnect said pair of opposed coaxial blind vias without electrically interconnecting any other blind vias,

wherein a first bridge pad of said at least one bridge pad lacks electrical connectivity to others of said at least one bridge pads, and

wherein each pair of opposed coaxial blind vias in said dual blind via interconnection unit are coaxial,

said pair of opposed coaxial blind vias extend from a corresponding pair of capture pads, and

each of said corresponding pairs of capture pads have a diameter less than a diameter of a corresponding one of said bridge pads.

19. (Original) The interconnection unit of claim 18, wherein said bridge pad has a diameter in the range of from about 12 to 20 mils.

20. (Original) The interconnection unit of claim 19, wherein each of said pair of blind vias has a diameter in the range of from about 4 to 6 mils.

21-39. (Canceled)

40. (Previously Presented) A method for forming a multilayer printed circuit board (PCB), comprising:

a) providing a metal clad first dielectric layer having a first metal clad side and a second metal clad side;

b) forming a bridge layer from said second metal clad side, wherein said bridge layer comprises a plurality of bridge pads disposed on said first dielectric layer, and wherein said first metal clad side comprises a first metal layer;

c) providing a second dielectric layer disposed on said bridge layer, wherein said second dielectric layer has a second metal layer disposed thereon;

d) forming a first blind via through said first dielectric layer, wherein said first blind via extends from said first metal layer to a first side of at least one of said plurality of bridge pads; and

e) forming a second blind via through said second dielectric layer, wherein said second blind via extends from said second metal layer to a second side of said at least one of said plurality of bridge pads,

wherein said each of said bridge pad is coaxial in a z direction with a corresponding one of said first blind via and with a corresponding one of said second blind via, and

wherein, in the absence of an interstitial bridge pad therebetween, at least a portion of said first dielectric layer is fused to at least a portion of said second dielectric layer, and

said corresponding one of said first blind via extends from a corresponding first capture pad to a first side of each of said bridge pads,

said corresponding one of said second blind via extends from a corresponding second capture pads to a second side of each of said bridge pads, and

said corresponding first capture pad and said corresponding second capture pad each have a diameter less than a diameter of said bridge pad therebetween.

41. (Original) The method of claim 40, wherein said step b) comprises etching said second metal clad side of said first dielectric layer to form said at least one of said plurality of bridge pads.

42. (Original) The method of claim 40, wherein:

said second metal clad side comprises copper foil, and

wherein said at least one of said plurality of bridge pads comprises copper.

43. (Original) The method of claim 40, wherein each of said plurality of bridge pads has a diameter in the range of from about 12 to 20 mils.

44. (Original) The method of claim 40, wherein said bridge layer lacks electrical connectivity between said plurality of bridge pads.

45. (Original) The method of claim 40, wherein said steps c) and d) respectively comprise forming said first blind via and said second blind via by a process selected from the group consisting of laser drilling, plasma drilling, and photo-defining.

46. (Original) The method of claim 40, further comprising:

e) plating shut said first blind via and said second blind via.

47. (Original) The method of claim 40, wherein said method involves only a single plating cycle.

48. (Original) The method of claim 46, wherein after said step e), said first metal layer and said second metal layer each have a thickness in the range of from about 0.8 to 1.4 mils.

49. (Original) The method of claim 46, wherein after said step e) said first metal layer and said second metal layer each have a thickness in the range of from about 0.9 to 1.1 mils.

50. (Original) The method of claim 40, wherein said first blind via and said second blind via each comprise a μvia having a diameter in the range of from about 4 to 5 mils.

51. (Previously Presented) A method for forming a multilayer printed circuited board (PCB), comprising:

a) forming a pseudo three-layer core, said pseudo three-layer core including:

a first metal layer;

a first dielectric layer disposed on said first metal layer,

a plurality of spaced apart interstitial bridge pads disposed on said first dielectric layer;

a second dielectric layer disposed on said plurality of spaced apart interstitial bridge pads; and

a second metal layer disposed on said second dielectric layer; and

b) forming a plurality of interlayer interconnection units for interconnecting said first metal layer and said second metal layer, wherein each of said interlayer interconnection units includes:

a first blind via disposed on a first side of one of said plurality of interstitial bridge pads, wherein said first blind via extends from said first metal layer through said first dielectric layer; and

a second blind via disposed on a second side of one of said plurality of interstitial bridge pads, wherein said second blind via extends from said second metal layer through said second dielectric layer, wherein said interstitial bridge pad is coaxial in a z direction with said first blind via and with said second blind

via, and wherein each of said interlayer interconnection units include coaxially formed corresponding first blind vias and second blind vias, and

said first blind via extends from a corresponding first capture pad to a first side of each of said plurality of interstitial bridge pads,

said second blind via extends from a corresponding second capture pads to a second side of each of said plurality of interstitial bridge pads, and

said corresponding first capture pad and said corresponding second capture pad each have a diameter less than a diameter of said interstitial bridge pad therebetween.

52. (Original) The method of claim 51, wherein:

said step b) comprises plating shut said first blind via and said second blind via, and

said method includes only a single plating cycle.

53. (Original) The method of claim 51, wherein each of said first blind via and said second blind via has an aspect ratio of at least about 1:1.

54. (Original) The method of claim 53, wherein each of said interlayer interconnection units has an effective aspect ratio of at least about 2:1.

55. (Previously Presented) A method for forming a multilayer printed circuit board (PCB), comprising:

a) a step for forming a pseudo three-layer core, wherein said pseudo three-layer core includes:

a first metal layer;

a first dielectric layer disposed on said first metal layer;

a plurality of bridge pads disposed on said first dielectric layer;

a second dielectric layer disposed on said bridge pads; and

a second metal layer disposed on said second dielectric layer; and

b) a step for forming a plurality of interlayer interconnection units for electrically interconnecting said first metal layer and said second metal layer, wherein each of said interlayer interconnection units includes:

a pair of opposed coaxial blind vias, and

one of said plurality of bridge pads disposed between, and in electrical contact with, said pair of blind vias,

wherein each pair of opposed coaxial blind vias in each of said plurality of interlayer interconnection units are coaxial,

said pair of opposed coaxial blind vias extend from a corresponding pair of capture pads, and

each of said corresponding pairs of capture pads have a diameter less than a diameter of a corresponding one of said bridge pads.

56. (Previously Presented) A method for forming a pseudo three-layer core for a PCB, comprising:

a) providing a first metal layer;

b) providing a first dielectric layer on said first metal layer;

c) forming a plurality of bridge pads on said first dielectric layer;

d) providing a second dielectric layer on said plurality of bridge pads;

e) providing a second metal layer on said second dielectric layer;

f) forming a first blind via on a first side of each of said plurality of bridge pads, wherein said first blind via extends from said first metal layer through said first dielectric layer; and

g) forming a second blind via on a second side of each of said plurality of bridge pads, wherein said second blind via extends from said second metal layer through said second dielectric layer,

wherein each of said plurality of bridge pads is coaxial in a z direction with said first blind via and with said second blind via,

said first blind via extends from a corresponding first capture pad to a first side of each of said plurality of bridge pads,

said second blind via extends from a corresponding second capture pads to a second side of each of said plurality of bridge pads, and

said corresponding first capture pad and said corresponding second capture pad each have a diameter less than a diameter of said bridge pad therebetween.

57. (Original) The method of claim 56, wherein:

said first dielectric layer comprises a first side and a second side, said first side having said first metal layer disposed thereon, and said second side having a layer of copper foil disposed thereon, and

said step c) comprises etching said layer of copper foil.

58. (New) An apparatus for forming a pseudo three-layer core for a PCB, comprising:

a) means for providing a first metal layer;

b) means for providing a first dielectric layer on said first metal layer;

c) means for forming a plurality of bridge pads on said first dielectric layer;

d) means for providing a second dielectric layer on said plurality of bridge pads;

e) means for providing a second metal layer on said second dielectric layer;

f) means for forming a first blind via on a first side of each of said plurality of bridge pads, wherein said first blind via extends from said first metal layer through said first dielectric layer; and

g) means for forming a second blind via on a second side of each of said plurality of bridge pads, wherein said second blind via extends from said second metal layer through said second dielectric layer,

wherein each of said plurality of bridge pads is coaxial in a z direction with said first blind via and with said second blind via,

said first blind via extends from a corresponding first capture pad to a first side of each of said plurality of bridge pads,

said second blind via extends from a corresponding second capture pads to a second side of each of said plurality of bridge pads, and

said corresponding first capture pad and said corresponding second capture pad each have a diameter less than a diameter of said bridge pad therebetween.